

## 5.4 Geology and Soils

The following geologic discussion is summarized from the geological reconnaissance survey performed by Ninyo and Moore in 2003 as part of the City of Chula Vista General Plan Update (GPU) process and GPU EIR. Section 5.5 of the GPU EIR pertaining to geology and soils of the GPU area, including the UCSP area, is available for review in its entirety at the City of Chula Vista Planning Department at 276 Fourth Avenue, the Chula Vista Civic Center Library at 365 F Street, or online at the documents page of the City of Chula Vista website at [www.ci.chula-vista.ca.us](http://www.ci.chula-vista.ca.us). Additional information and mapping refinement was obtained from digital GIS data from the San Diego Natural History Museum and USDA for geologic formations and soils, respectively.

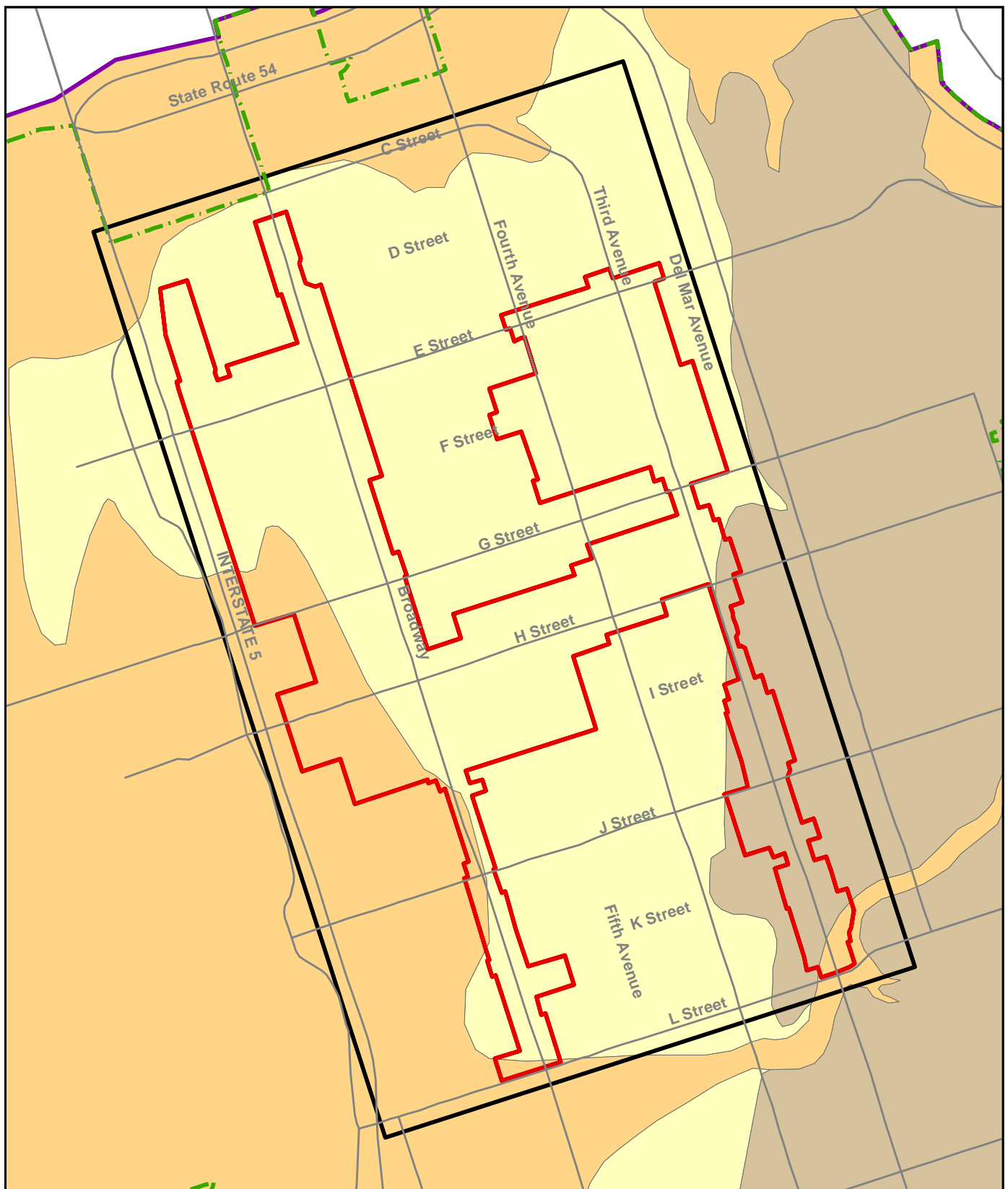
### 5.4.1 Existing Conditions

#### 5.4.1.1 Geologic Setting

The UCSP area is located within the western portion of the Coastal Terraces Geomorphic Province. The general flat topography of this region is largely a factor of deposition at or near sea level in a broad coastal floodplain. For the most part, low topographic relief, extensive residential and commercial development, and widespread native and introduced vegetation characterize the Coastal Terraces Region. The majority of the UCSP area has been previously developed with residential, commercial, and industrial uses. The area is underlain generally by artificial fill, marine terrace deposits (Bay Point Formation and Unnamed Nearshore Marine Sandstone), and materials of the Lindavista Formation. Figure 5.4-1 shows the locations of these geologic formations within the Subdistricts Area.

- ***Artificial Fill (not presented on the Geologic Map)***

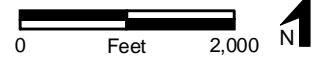
Large portions of the western portion of the UCSP Subdistricts Area are underlain by fill material placed during land reclamation projects along San Diego Bay. Large fill areas are located in the vicinity of the west end of H Street. Much of the fill has been placed as hydraulic fill and has not been engineered. It is anticipated that many portions of the Subdistricts Area are underlain by artificial fill placed during the grading of the developments. Due to the scale of the geologic map, fill material was not mapped as a separate unit. Fill materials encountered at specific sites should be evaluated on a case-by-case basis to evaluate the condition of existing fill relative to proposed improvements.



- UCSP Study Area
- UCSP Subdistricts Area
- City of Chula Vista boundary
- General Plan Update boundary

**Geological Formations**  
(Source: SDNHM, 2004)

- Qal
- Qlv
- Qu



**FIGURE 5.4-1**  
Geologic Formations

- ***Alluvium (map symbol Qal)***

Holocene-age alluvial deposits cover a small portion of the Subdistricts Area from roughly F Street to I Street west of Broadway. Localized deposits of alluvium may also be present beneath the fill in some areas. Alluvial deposits are generally composed of uncemented sand, silt, clay, and gravel with varying amounts of cobbles and gravel. Slope wash/colluvium is generally present along the flanks and base of slopes. These units have not been differentiated from alluvial deposits on the geologic map.

- ***Marine Terrace Deposits (Bay Point Formation, map symbol Qu)***

Quaternary-age terrace deposit sediments, mapped as Bay Point Formation together with an unnamed nearshore marine sandstone, underlie the bulk of the Subdistricts Areas. In general, the marine terrace deposits are composed of yellowish to reddish and light brown, moist to saturated, medium dense to dense, fine to medium sand with varying amounts of silt and clay. The terrace deposits may also be present as weakly cemented sandstone with local fossiliferous or concretion-bearing sandstone beds.

Terrace deposits are generally not susceptible to liquefaction or seismically induced settlement. They commonly possess sufficient bearing capacity to support deep or conventional foundations, and are readily excavatable. Terrace deposits in the plan area generally do not form steep, instability-prone slopes.

- ***Lindavista Formation (map symbol Qlv)***

Materials of the Lindavista Formation are present in the portion of the Subdistricts Area along Third Avenue, south of H Street. Materials of the Pleistocene-age Lindavista Formation are described as consisting generally of reddish brown, moderately cemented, medium- to coarse-grained sandstone, conglomeritic sandstone, and cobble conglomerate. The Lindavista Formation is generally stable and resistant to erosion. This formation possesses good compressibility characteristics, and cut slopes inclined at 2:1 (horizontal:vertical) are generally stable to heights in excess of 50 feet. However, clay and claystone present in the unit may form expansive soils.

#### **a. Soils**

Two main groups of soil types were identified in the GPU EIR as occurring within the Northwest Planning Area, within which the UCSP Subdistricts Area lies. Additional soils data and mapping for the UCSP has identified one main group of soils, the Huerhuero Association, as described below.

***Huerhuero Association***

This association is made up of soils that developed on marine terraces. They are generally moderately well drained loams, gravelly clay loams, and cobbly loams that have a subsoil of clay or gravelly clay over a hardpan of cobbly alluvium. They are found on 0 to 50 percent slopes at elevations ranging from sea level to 600 feet AMSL. These soils may be subject to expansion.

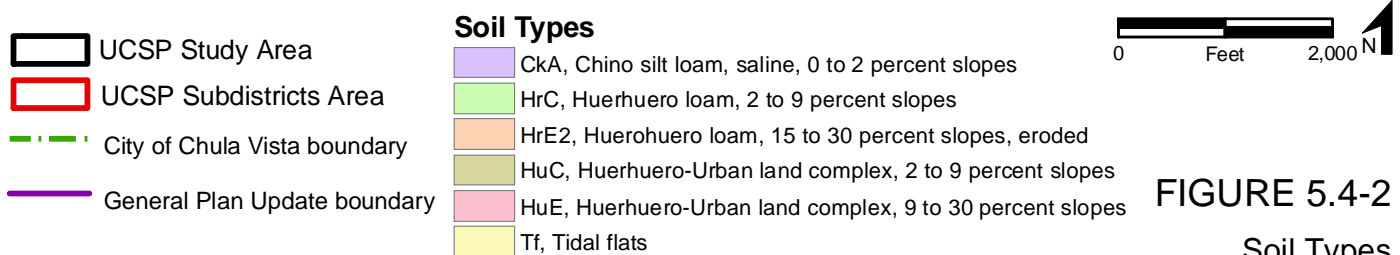
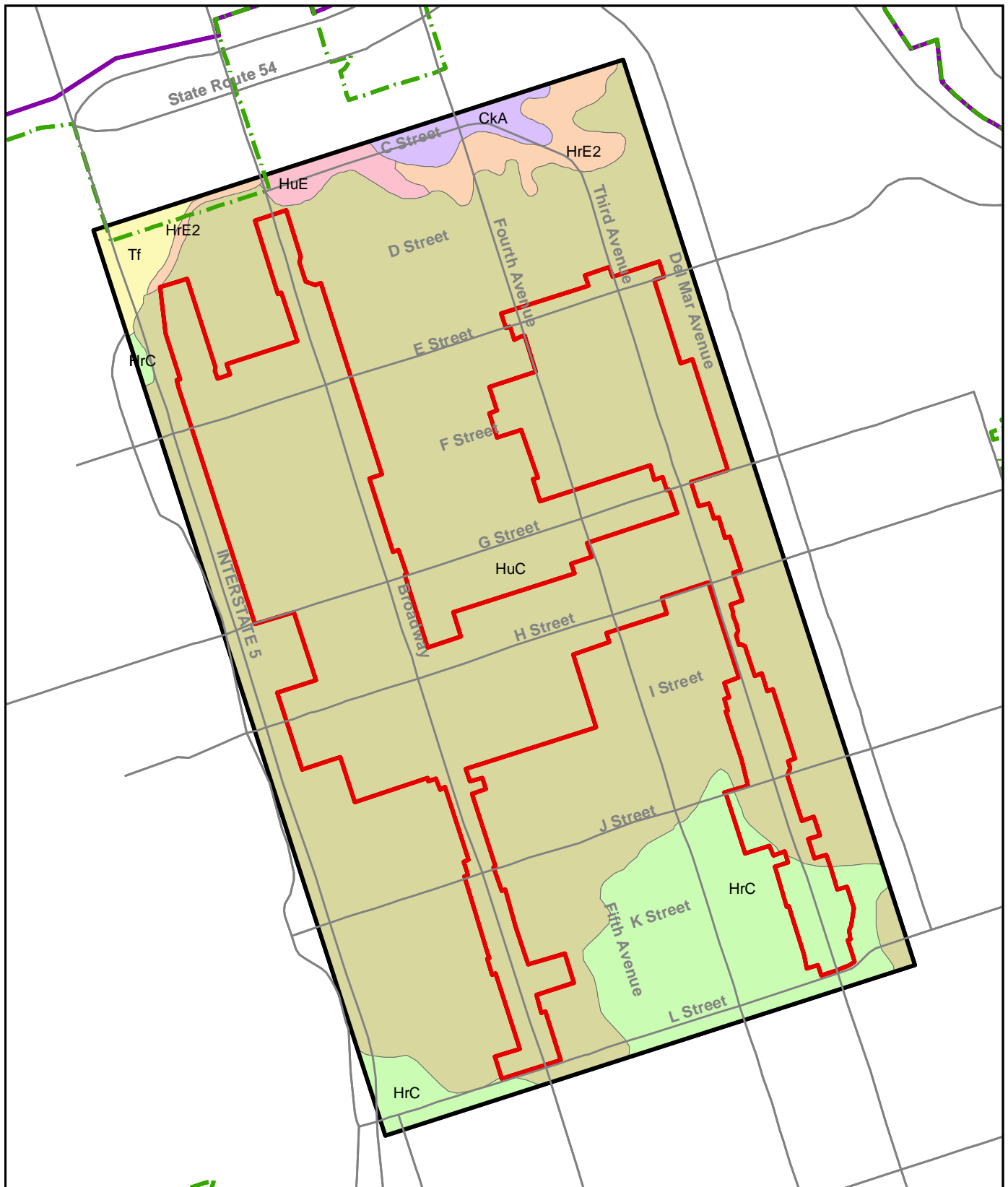
Elevation of the UCSP area ranges from 20 feet AMSL along the western boundary to 90 and 100 feet AMSL in the northeast and southeast corners, respectively. Topographic contours generally trend north and south, roughly paralleling the west and east boundaries of the UCSP boundary. The Huerhuero-Stockpen and Redding-Olivenhain Association soils cover nearly all of the Subdistricts Area, with other soil types occurring in the southeastern tip of the Subdistricts Area along Third Avenue roughly south of K Street.

Figure 5.4-2 shows the approximate locations of these soil types within the Subdistricts Area. This soils mapping was obtained from SANDAG geographic information systems (GIS) and reflects the 1972 U.S. Department of Agriculture (USDA) Soil Survey converted to digital GIS format.

**b. Faulting and Seismicity**

Chula Vista is situated within a seismically active region. However, the UCSP Subdistricts Area is not underlain by known active fault splays (i.e., faults that exhibit evidence of ground displacement during the last 11,000 years). Ground surface rupture due to active faulting is not considered likely in the plan area due to the absence of any known active faults underlying the plan area. Lurching or cracking of the ground surface as a result of nearby or distant seismic events is also considered unlikely. The Rose Canyon fault, located approximately 14 miles northwest of the UCSP area, is currently classified as “active” by the state of California, and lies within an earthquake fault zone. The Rose Canyon fault has an assigned maximum earthquake magnitude of 6.9 and is most likely to affect the plan area.

Traces of the La Nacion fault zone, considered “potentially active” by the City of Chula Vista and the state of California, are known to exist just east of the Subdistricts Area in a generally north-south direction roughly in the vicinity of I-805. The greatest magnitude earthquake expected on the La Nacion fault is estimated at 6.0. Distances from central Chula Vista to active fault ruptures within 100 kilometers of the site are presented in Table 5.4-1 below.



**FIGURE 5.4-2**  
Soil Types

**TABLE 5.4-1  
DETERMINISTIC SITE PARAMETERS FOR SELECTED ACTIVE FAULTS**

Fault Name	Distance From Site (miles)	Maximum Credible Magnitude	Maximum Credible Site Accelerations (g)
Rose Canyon	10	6.9	0.26
Coronado Bank-Agua Blanca	17	7.4	0.19
Elsinore-Julian	42	7.1	0.06
Elsinore-Coyote Mountain	45	6.8	0.05
Earthquake Valley	46	6.5	0.04
Newport-Inglewood (Offshore)	45	6.9	0.05

SOURCE: Geocon, Inc. 2002, 2003.

g = gravity

Historically, the Chula Vista area has generally been spared a major destructive earthquake. However, based on a search of earthquake databases of the United States Geological Survey (USGS) – National Earthquake Information Center (NEIC), several major earthquakes (Magnitude 5.0 or more) have been recorded within approximately 100 kilometers of the plan area since 1800. Table 5.4-2 summarizes the approximate magnitude and distance to these seismic events.

**TABLE 5.4-2  
HISTORICAL EARTHQUAKES**

Date	Magnitude (M)	Epicentral Distance (Km)
11/22/1800	6.5	48
05/27/1862	5.9	19
02/24/1892	6.7	65
05/28/1892	6.3	96
10/23/1894	5.7	25
11/04/1949	5.7	65
12/22/1964	5.6	93
1/12/1975	5.1	92
7/13/1986	5.8	88

The seismic risk at the Subdistricts site is the not considered significantly greater than that of the surrounding developments.

### **c. Groundwater**

The majority of the Subdistricts Area is not expected to be affected by shallow groundwater. Groundwater is expected to occur as relatively shallow in areas mapped as being underlain by fill and unconsolidated alluvial sediments. These areas cover only a small southwestern portion of the Subdistricts Area extending roughly from F to I streets west of Broadway (refer to Figure 5.4-1). The direction of groundwater flow is generally toward the west, with significant local variations. Perched water conditions due to irrigation and runoff may also be present.

**d. Liquefaction**

The California Division of Mines and Geology (CDMG) classifies areas with shallow groundwater tables and poorly consolidated granular sediments as having a high potential for liquefaction and seismically induced settlement. As described in the paragraph above, groundwater is likely to be shallow below the existing ground surface in many areas mapped as being underlain by fill and unconsolidated alluvial sediments.

A small portion of the Subdistricts Area contains areas with shallow groundwater tables and poorly consolidated granular sediments potentially subject to hazards associated with seismically induced liquefaction. The liquefaction hazard areas overlay the Subdistricts Area from approximately F to I Streets west of Broadway (refer to Figure 5.4-1).

**e. Ground Rupture**

Ground surface rupture due to active faulting is not considered likely in the Subdistricts Area due to the absence of any known active faults underlying the study area. Lurching or cracking of the ground surface as a result of nearby or distant seismic events is also considered unlikely.

**f. Landsliding and Lateral Spreads**

Areas of known landslides or areas generally susceptible to landsliding do not occur in the Subdistricts Area.

**g. Compressible and Expansive Soils**

Loose compressible soils, including topsoil, colluvium, and alluvium are found over much of the UCSP area and may be subject to expansion. These materials are subject to settlement under increased loads or due to an increase in moisture content from site irrigation or a change in drainage conditions.

**h. Tsunamis, Seiches, and Earthquake-Induced Flooding**

The elevation of the Subdistricts Area ranges from 20 to 40 feet AMSL along the western boundary to 90 and 100 feet AMSL in the northeast and southeast corners, respectively. Topographic contours generally trend north to south, roughly paralleling the west and east boundaries of the UCSP area. Elevations of 60 to 90 feet AMSL cover the central part of the Subdistricts Area, with higher elevations of 80 to 100 feet AMSL along Third Avenue.

The Subdistricts Area's elevation as well as its sizable distance inland (approximately two miles from San Diego Bay with an additional one and one-half miles to open ocean) precludes damage wrought by tsunamis (seismically induced waves) or seiches. There

is low potential for earthquake-induced flooding of the Subdistricts Area because the area lacks river tributaries and lakes.

### 5.4.2 Criteria for Determination of Significance

Based on the thresholds identified in Appendix G of the CEQA guidelines, the proposed project would result in a significant impact to geology and soils if it would:

- Criterion 1: Expose people or structures to potential substantial adverse effects, including the risk of loss, injury, or death involving:
  - (a) Rupture of a known earthquake fault, as delineated on the most recent Alquist-Priolo Earthquake Fault Zoning Map issued by the State Geologist for the area or based on other substantial evidence of a known fault,
  - (b) Strong seismic ground shaking,
  - (c) Seismic-related ground failure, including liquefaction, or
  - (d) Landslides; or
- Criterion 2: Result in substantial soil erosion or the loss of topsoil;
- Criterion 3: Is located on a geologic unit or soil that is unstable or that would become unstable as a result of the project and potentially result in on- or off-site landslide, lateral spreading, subsidence, liquefaction, or collapse;
- Criterion 4: Is located on expansive soil, as defined in Table 18-1-B of the Uniform Building Code (1994), creating a substantial risk to life or property; and
- Criterion 5: Has soils incapable of adequately supporting the use of septic tanks or alternative waste water disposal systems where sewers are not available for disposal of waste water.

### 5.4.3 Impacts

For ease of discussion, the five significance criteria listed in the previous section have been summarized to one criterion which encompasses all five geologic, soils, and seismic concerns. The criterion is restated as follows:

- **Criterion 1: Expose people or structures to substantial risk or injury or loss of life or destruction of property caused by soils, seismic, or other geologic hazards.**



### **5.4.3.1 Soil Hazards**

#### **a. Expansive Soils**

Expansive soils are potentially present in localized areas throughout the Subdistricts Area. Expansive soils within pavement, foundation, or slab subgrade could heave when wetted, resulting in cracking or failure of these development improvements. The potential for the existence of expansive soils within the Subdistricts Area where future new development and redevelopment would occur comprises a potentially significant impact.

#### **b. Compressible Soils**

Loose or compressible soils are found over much of the UCSP and within the Subdistricts Area. These materials are subject to settlement under increased loads, or due to an increase in moisture content from site irrigation or changes in drainage conditions. Without removal and replacement of compressible soils, new development or redevelopment within the UCSP Subdistricts Area would be subject to potentially significant impacts.

#### **c. Soil Erosion**

Soil erosion or loss of topsoil would be negligible as little existing bare soil exists within the highly urbanized Subdistricts Area. Therefore, soil erosion and loss of topsoil is not a significant impact expected with implementation of the UCSP.

#### **d. Septic Unsuitability**

Soil suitability for septic or alternate waste water systems is not an issue for the Subdistricts Area as sewer systems are available for disposal of wastewater. Soil unsuitability for septic tanks is thus not a significant impact.

### **5.4.3.2 Seismic Hazards**

#### **a. Ground Rupture**

Ground surface rupture due to active faulting is not considered likely in the plan area due to the absence of any known active faults underlying the UCSP area. Lurching or cracking of the ground surface as a result of nearby or distant seismic events is also considered unlikely. Accordingly, there is no potentially significant impact from ground surface rupture.

#### **b. Ground Shaking**

While ground rupture is unlikely, nearby or distant seismic events have the potential to cause ground shaking. The nearest known fault is the Rose Canyon Fault, located

approximately 10 miles northwest of the site. The La Nacion fault zone is potentially active, which means it has not offset geologic formations younger than 11,000 years old and does present a risk to residential and commercial development. The most significant probable seismic event with the potential to affect the Subdistricts Area would be a 6.9 maximum credible magnitude earthquake on the Rose Canyon fault zone, resulting in an estimated peak ground acceleration of 0.26g. While this seismic risk is not considered greater than that of surrounding developments, the potential for damage resulting from possible ground shaking is a potentially significant impact.

### **c. Liquefaction**

Liquefaction is a phenomenon where loose, saturated, and relatively cohesionless soil deposits lose strength during strong ground motions. The alluvial and colluvial deposits underlying the southwestern edge of the Subdistricts Area west of Broadway between F and I Streets, could undergo liquefaction if saturated soils are subjected to ground shaking of sufficient magnitude and duration. This comprises a potentially significant impact.

### **d. Tsunamis, Seiches, and Earthquake-Induced Flooding**

Tsunamis, seiches, and earthquake-induced flooding are not expected to occur in the Subdistricts Area given its distance of over two miles inland and average elevation of 60 to 80 feet above mean sea level. No potentially significant impacts are thus expected as a result of tsunamis, seiches, or earthquake-inducing flooding.

## **5.4.3.3 Other Geologic Hazards**

### **a. Landslides and Lateral Spreads**

Landslides and lateral spreads due to seismic activity or underlying unstable geologic units or soils were not observed within the Subdistricts Area and are not expected to occur. Therefore, there is no potential for significant impacts due to landslides or lateral spreads.

### **b. Groundwater**

Shallow groundwater is likely to occur in areas underlain by fill and unconsolidated alluvial sediments along the northern and western boundary of the Subdistricts Area, west of Broadway between F and I Streets. Shallow groundwater hazards are associated with the potential for liquefaction and seismically induced settlement and its presence in the Subdistricts Area is therefore potentially significant.

### **5.4.4 Summary of Significance Prior to Mitigation**

The UCSP area is potentially subject to strong ground shaking by an earthquake along the active Rose Canyon fault zone, or other active faults in the region. The Subdistricts Area may additionally be subject to liquefaction along its western boundary. Compressible and expansive soils also have the potential to be encountered by future development throughout the Subdistricts Area. Buildout of the UCSP would result in an increase in housing, office space, retail space, and hotels that would be subject to these potentially significant seismic and soils hazards. Therefore, there would be a proportionate increase in personal and property damage as the population within the urban core increases.

Implementation of project-specific mitigation measures as described below would be required to reduce or avoid significant impacts resulting from groundshaking, liquefaction, and compressible and expansive soils.

### **5.4.5 Mitigation Measures**

#### **Mitigation Measure**

5.4.5-1 Prior to the approval of each subsequent development project, the project applicant shall submit a comprehensive soil and geologic evaluation of the project site to the City Engineer and/or Building Official for review and approval. The evaluation shall be prepared by a licensed geotechnical engineer in order to identify site-specific conditions and to determine whether potential soil and geologic hazards exist on the site. The evaluation shall include, but not be limited to, a delineation of specific locations where liquefiable, compressive, and expansive soils would affect structural stability and where graded slopes would expose bedrock susceptible to instability. Liquefiable, expansive, or compressive soils shall be removed from the site and shall be replaced with compacted fill.

#### **Mitigation Measure**

5.4.5-2 Prior to the issuance of a building permit for each subsequent development project, the City Building Official shall verify that the design of all structures proposed for a specific site comply with the requirements of all federal, state and local building codes and regulations governing earthquake safety and structural stability and with the standard practices of the Association of Structural Engineers of California.

### **5.4.6 Summary of Significance After Mitigation**

With application of the above mitigation measures, all potential seismic, geologic, and soils impacts to people and property within the proposed Subdistricts Area would be reduced to below a level of significance.

## 5.5 Paleontology

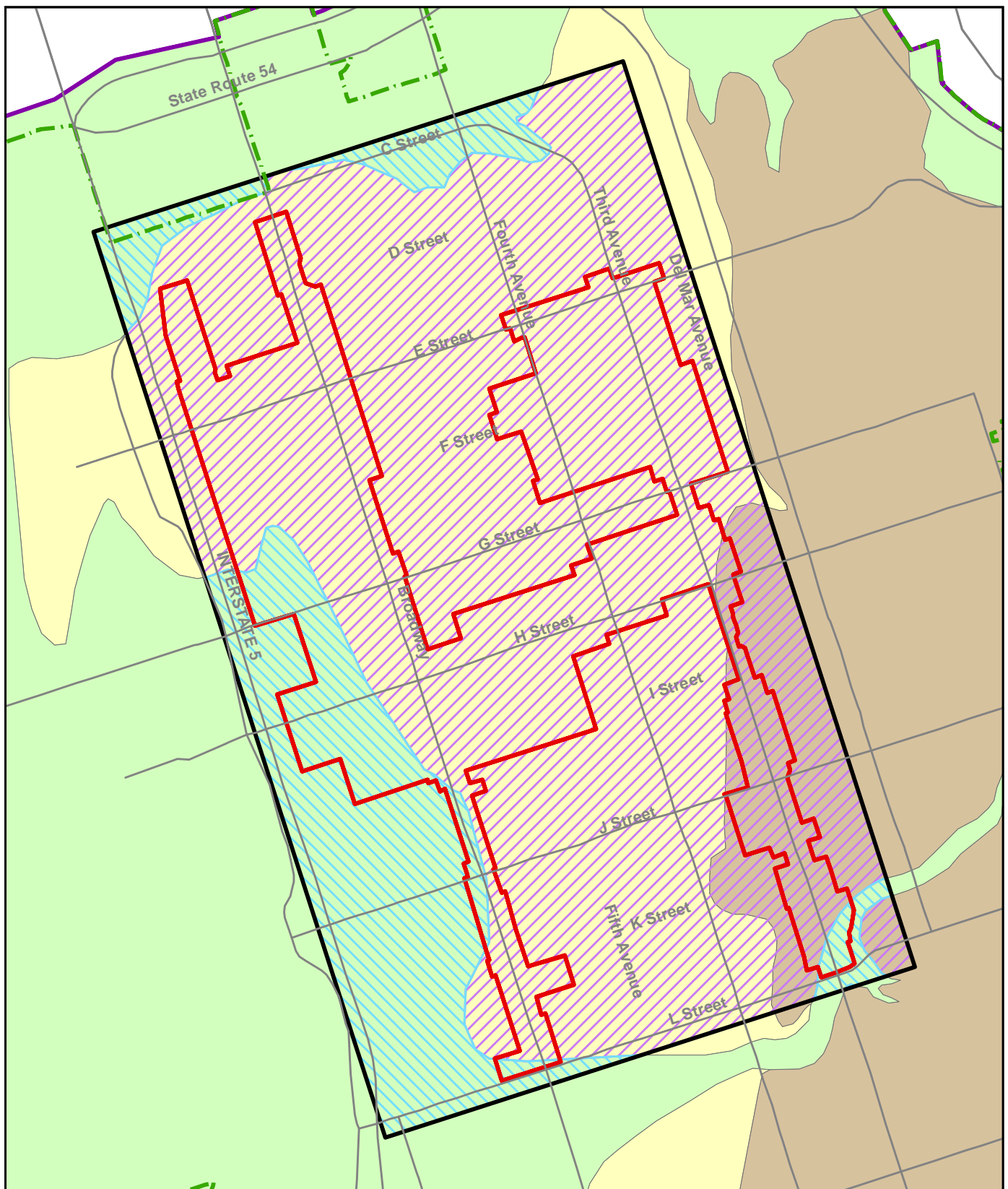
Paleontological resources (fossils) are the remains and/or traces of prehistoric animal and plant life exclusive of human remains or artifacts. Fossil remains such as bones, teeth, shells, leaves, and so on, are found in the geologic deposits (rock formations) within which they were originally buried. Fossil remains are important as they provide indicators of the earth's chronology and history. They represent a limited, nonrenewable, and sensitive scientific and educational resource.

The following discussion of paleontological resources within the UCSP is summarized from information included in the EIR for the City of Chula Vista GPU (Section 5.6) and is available for review in its entirety at the City of Chula Vista Planning Department at 276 Fourth Avenue, the Chula Vista Civic Center Library at 365 F Street, or online at the documents page of the City of Chula Vista website at [www.ci.chula-vista.ca.us](http://www.ci.chula-vista.ca.us).

### 5.5.1 Existing Conditions

As discussed in Section 5.4, Geology and Soils, the UCSP area is located in the Coastal Terraces Region of Chula Vista. The Coastal Terraces Region of Chula Vista is underlain by a thick accumulation of Pleistocene to recent marine and non-marine sedimentary rocks deposited within a seismically active, fault-bounded, pull-apart basin formed by faults of the Rose Canyon fault zone. These faults generally strike north-south and are responsible for the formation of modern San Diego Bay. The general flat topography of this region is largely a factor of deposition at or near sea level in a broad coastal floodplain. For the most part, the low topographic relief, extensive residential and commercial development, and widespread native and introduced vegetation that characterize the Coastal Terraces Region are also responsible for the limited number of areas where the underlying geology is exposed in outcrop. In turn, this lack of geologic exposure is probably also responsible for the paucity of paleontological collecting sites recorded from the Coastal Terraces Region. These few sites have produced a limited assemblage of terrestrial mammals including fossil species of tapir, horse, and rabbit.

The majority of the UCSP area is underlain with unnamed nearshore marine sandstone (Qu), which is assigned a moderate paleontologic sensitivity rating. Later quaternary alluvium (Qal) and Lindavista Formation (Qlv) additionally occur within the UCSP area and are assigned a low and moderate paleontologic sensitivity, respectively. Figure 5.5-1, Geologic Formations and Paleontologic Sensitivity, shows the location of these formations within the UCSP Subdistricts area. As shown, the Qu geologic formation underlies all of the UCSP Subdistricts area save for a small area of Qal west of Broadway between F and I Streets and a smaller portion of Qlv south of H Street along Third Avenue.



- UCSP Study Area
- UCSP Subdistricts Area
- City of Chula Vista boundary
- General Plan Update boundary

**Paleontological Sensitivity**

- moderate
- low

**Geological Formations (draft)**  
(Source: SDNHM, 2004)

- Qal
- Qlv
- Qu

0 Feet 2,000 N

**FIGURE 5.5-1**  
Paleontological Sensitivity

## 5.5.2 Criteria for the Determination of Significance

According to Appendix G of the CEQA Guidelines, impacts to paleontological resources would be significant if the proposed project:

- Criterion 1: Directly or indirectly destroys a unique paleontological resource or site or unique geologic feature.

## 5.5.3 Impact Analysis

### 5.5.3.1 Paleontological Resources/Unique Geologic Features

- **Criterion 1: Directly or indirectly destroys a unique paleontological resource or site or unique geologic feature.**

Nearly all of the UCSP Subdistricts Area is located within Qu and Qlv areas designated as moderately paleontologically sensitive (see Figure 5.5-1). The moderately sensitive areas of the Lindavista Formation (Qlv) with accumulations of colluvial and alluvial deposits and unnamed nearshore marine sandstone (Qu) may be exposed during future grading and construction activities. While no known locations of paleontological resources are available, exposure of these formations would likely result in the unearthing of fossil remains, which could damage the fossils if they were not recovered and salvaged. The occurrence of fossils within the covered bedrock cannot be evaluated prior to exposure. Therefore, grading due to implementation of the UCSP could potentially significantly impact sensitive paleontologic resources.

Buildout of the proposed UCSP may also result in removal of low paleontologically sensitive areas underlain with Quaternary alluvium (Qal). A small area of low paleontologically sensitive Qal is located in the Subdistricts Area west of Broadway between F Street and I Street. This formation has not yielded any known paleontological resources, and is assigned a low sensitivity rating. Therefore, impacts to this formation would not be considered significant.

Because the UCSP area is fully developed with urban uses, future grading would typically be minimal except in areas with sub-garages and sub-floors. As shown in Table 5.5-1, development proposed in areas of moderate sensitivity (see Figure 5.5-1) that propose to grade in excess of 2000 cubic yards and five feet deep will require mitigation.

**TABLE 5.5-1  
PALEONTOLOGICAL GRADING THRESHOLDS**

Sensitivity Rating	Excavation Volume and Depth Thresholds
High	>1000 cubic yards and >5 feet deep
Moderate	>2000 cubic yards and >5 feet deep
Zero-Low	Mitigation not required

### 5.5.4 Level of Significance Prior to Mitigation

The UCSP area contains a large expanse of moderate paleontological resource sensitivity. Exposure or disturbance of unnamed nearshore marine sandstone and the Linda Vista Formation would potentially significantly impact paleontological resources. Because the UCSP area is fully developed with urban uses, future grading would typically be minimal except in areas with sub-garages and sub-floors. As shown in Table 5.5-1, development proposed in areas of moderate sensitivity (see Figure 5.5-1) that propose to grade in excess of 2000 cubic yards and five feet deep will require mitigation.

### 5.5.5 Mitigation Measures

The following measures will mitigate impacts to paleontological resources resulting from adoption of the UCSP to below a level of significance.

#### Mitigation Measure

- 5.5-1 Subsequent development projects that propose grading in excess of 2,000 cubic yards and five feet depth in areas of moderate sensitivity for paleontological resources shall be required to implement a pre-construction or construction monitoring program, or both, as a condition of approval. All mitigation programs shall be performed by a qualified professional paleontologist, defined here as an individual with a M.S. or Ph.D. in paleontology or geology who has proven experience in San Diego County paleontology and who is knowledgeable in professional paleontological procedures and techniques. Fieldwork may be conducted by a qualified paleontological monitor, defined here as an individual who has experience in the collection and salvage of fossil materials. The paleontological monitor shall always work under the direction of a qualified paleontologist.

**Pre-construction mitigation.** This method of mitigation is only applicable to instances where well-preserved and significant fossil remains, discovered in the assessment phase, would be destroyed during initial clearing and equipment move-on. The individual tasks of this program include:



1. Surface prospecting for exposed fossil remains, generally involving inspection of existing bedrock outcrops but possibly also excavation of test trenches;
2. Surface collection of discovered fossil remains, typically involving simple excavation of the exposed specimen but possibly also plaster jacketing of large and/or fragile specimens or more elaborate quarry excavations of richly fossiliferous deposits;
3. Recovery of stratigraphic and geologic data to provide a context for the recovered fossil remains, typically including description of lithologies of fossil-bearing strata, measurement and description of the overall stratigraphic section, and photographic documentation of the geologic setting;
4. Laboratory preparation (cleaning and repair) of collected fossil remains, generally involving removal of enclosing rock material, stabilization of fragile specimens (using glues and other hardeners), and repair of broken specimens;
5. Cataloging and identification of prepared fossil remains, typically involving scientific identification of specimens, inventory of specimens, assignment of catalog numbers, and entry of data into an inventory database;
6. Transferal, for storage, of cataloged fossil remains to an accredited institution (museum or university) that maintains paleontological collections (including the fossil specimens, copies of all field notes, maps, stratigraphic sections, and photographs); and
7. Preparation of a final report summarizing the field and laboratory methods used, the stratigraphic units inspected, the types of fossils recovered, and the significance of the curated collection.

**Construction mitigation.** Under this program, mitigation occurs while excavation operations are underway. The scope and pace of excavation generally dictate the scope and pace of mitigation. The individual tasks of a construction mitigation program typically include:

1. Monitoring of excavation operations to discover unearthed fossil remains, generally involving inspection of ongoing excavation exposures (e.g., sheet graded pads, cut slopes, roadcuts, basement excavations, and trench sidewalls);
2. Salvage of unearthed fossil remains, typically involving simple excavation of the exposed specimen but possibly also plaster jacketing of large and/or

fragile specimens, or more elaborate quarry excavations of richly fossiliferous deposits;

3. Recovery of stratigraphic and geologic data to provide a context for the recovered fossil remains, typically including description of lithologies of fossil-bearing strata, measurement and description of the overall stratigraphic section, and photographic documentation of the geologic setting;
4. Laboratory preparation (cleaning and repair) of collected fossil remains, generally involving removal of enclosing rock material, stabilization of fragile specimens (using glues and other hardeners), and repair of broken specimens;
5. Cataloging and identification of prepared fossil remains, typically involving scientific identification of specimens, inventory of specimens, assignment of catalog numbers, and entry of data into an inventory database;
6. Transferal, for storage, of cataloged fossil remains to an accredited institution (museum or university) that maintains paleontological collections, including the fossil specimens, copies of all field notes, maps, stratigraphic sections and photographs; and
7. Preparation of a final report summarizing the field and laboratory methods used, the stratigraphic units inspected, the types of fossils recovered, and the significance of the curated collection.

### **5.5.6 Level of Significance After Mitigation**

Compliance with the mitigation measures identified above would reduce potential impacts to paleontological resources to below a level of significance.

## **5.6 Population and Housing**

This section of the EIR addresses potential population and housing impacts from the future growth and development consistent with the UCSP. It should be noted that analyses of citywide population and housing impacts have already been fully evaluated in the GPU EIR and are herein incorporated by reference. The following analysis is intended to focus on the population and housing impacts associated with future infill development within the UCSP Subdistricts Area, which are the areas designated under the GPU to accommodate some of the future planned growth in the City.

### **5.6.1 Existing Conditions**

This section provides an overall discussion of the existing population and housing conditions within the UCSP subdistricts. For the purpose of this discussion, the evaluation of population and housing is based upon 1990 and 2000 U.S. Census data, 2004 SANDAG estimates, 2030 SANDAG projections, and population projections based on the City's recently adopted GPU. The City's GIS database was used to estimate existing housing statistics for the UCSP subdistricts.

#### **5.6.1.1 Population**

According to SANDAG, the total population of the City of Chula Vista, as of January 1, 2004, was approximately 209,436 persons. Since 2000, Chula Vista grew by approximately 20.7 percent or 35,880 persons. By 2030, the City is anticipated to grow by an additional 30 percent or 90,564 persons for a total population of approximately 300,000. 2004 population estimates for the UCSP Subdistricts Area only total approximately 9,546.

#### **5.6.1.2 Housing**

According to SANDAG, the City's total housing stock, as of January 1, 2004, was 71,844. Of this figure, 62 percent (44,732 units) are classified as single family and 33 percent as multifamily (23,314 units).

The majority (i.e. about two-thirds) of existing uses within the UCSP Subdistricts Area are low intensity commercial and office uses, particularly along the major corridors of E Street, Broadway, H Street and Third Avenue. Existing housing stock is estimated to be about 3,700 units and is primarily located between Broadway and Interstate-5, specifically within the UC-14 and UC-10 subdistricts. Housing within these districts is mostly older market rate multifamily units (rental and owner occupied) with mobile homes and limited single-family homes between F and G Streets and south of H Street. In addition, some multi-family and single-family uses are also located in the Village subdistricts, outside of the major corridors of E Street, Fourth and Third Avenue.

Approximately 83% of the existing housing stock in western Chula Vista, including the UCSP Subdistricts Area was built before 1980, indicating that within the 25 year planning horizon of the UCSP substantial rehabilitation or replacement may be needed.

It is estimated that about 55 percent of the existing approximate 3,700 total units are multi-family with single-family homes comprising approximately 18 percent of the total existing housing units. Approximately 27 percent of the existing housing within the UCSP area is comprised of mobile home and trailer parks located within the UCSP Subdistricts Area primarily along the Broadway corridor. The age of the existing housing units in the UCSP Subdistricts Area is generally 40 – 60 years old with some of the existing housing in the Village district dating back to the 1920's and 1930's.

A total of 304 restricted affordable housing units are located within the UCSP Subdistricts Area. These projects have legal covenants restricting occupancy to low income households, and require the units to be preserved as affordable units for a minimum time period. Although some of these housing developments' restrictions may expire during the study horizon of the plan, the City could also extend these restrictions through new agreements. In addition, new units of affordable housing will be created through implementation of the plan in accordance with City policy.

### **5.6.1.3 Plans, Policies, Rules, and Regulations**

There are a variety of existing local and state plans, policies, and regulations that address the City's housing needs and provision of adequate affordable housing. These policies and regulations will be considered, as applicable, as new development occurs in the UCSP Subdistricts Area. The following paragraphs provide brief descriptions of the existing policy and regulatory framework.

#### **a. Housing Element**

The State of California requires a Housing Element as part of a jurisdiction's comprehensive general plan. The Housing Element must address the housing need for all income levels through adequate zoning, policies, and programs. The City of Chula Vista's existing Housing Element (originally created for the 1999-2004 planning cycle) was approved by the State of California in 2000 and then again in 2002.

The 1999-2004 Housing Element contains the following goals and objectives to address a number of important housing-related issues:

- Goal 1: Conserve existing affordable housing opportunities.
- Goal 2: Maintain and enhance the quality of residential neighborhoods in Chula Vista.

- Goal 3: Ensure that an adequate and diverse housing supply is available to meet the City's existing and future needs.
- Goal 4: Increase home ownership opportunities for low- and moderate-income households.
- Goal 5: Enable homeless individuals and families to find permanent housing.
- Goal 6: Encourage energy and waste conservation as an integral part of homes.
- Goal 7: Promote equal opportunity for all residents to reside in housing of their choice.
- Goal 8: Reduction and/or removal to the greatest extent possible of identified constraints to the development, maintenance, and improvement of housing.

The City is in the process of updating the Housing Element to address similar housing needs and policy issues for the 2005-2010 planning cycle. The updated housing needs will be based on the current Regional Housing Needs Assessment (RHNA) approved by SANDAG in 2005. For Chula Vista, the 2005 RHNA establishes a housing goal of approximately 17,000 units citywide in the next 5 year housing cycle to meet housing needs. The total housing needs projections includes goals for all income categories (very low, low moderate and above moderate). One of the primary strategies identified by SANDAG in solving the regional housing needs and creating greater housing opportunities is to promote smart growth land use strategies that encourage construction of multi-family homes and mixed use projects in areas near transit and jobs. This strategy recognizes the near built condition of many of the cities in the region, including Chula Vista, and the need to better utilize the region's scarce land resources.

The following are some of the updated goals and objectives recommended for inclusion in the Housing Element update under preparation for submittal to the State Department of Housing and Community Development (HCD) in May 2006:

1. (2.1) Maintain & Enhance the Quality of Housing and Residential Neighborhoods in the City.
2. (2.2) Support Housing Opportunities to Meet the City's Diverse Needs.
3. (2.3) Fund and Implement Services that Provide Vital Community Resources for Lower Income Residents.
4. (H1) Minimize blighting influences and maintain the integrity of residential neighborhoods.

5. (H3) As required by State law, preserve existing affordable housing opportunities, where feasible and practical, to maintain an adequate supply of affordable housing.
6. (H4) Minimize the impacts associated with the conversion or demolition of rental housing on the housing stock and very low and low income residents.
7. (H5) Encourage the provision of a wide range of housing choices by location, type of unit, and price level, in particular the establishment of permanent affordable housing for low and moderate income households.
8. (H6) Promote the development of varied housing, coupled with appropriate services, to meet the needs of special population groups, those “at-risk” of becoming homeless, persons with physical and/or developmental disabilities, emancipated foster youth, students, athletes at the Olympic Training Center, single-parent households, and seniors.
9. (H7) Facilitate the creation, maintenance, preservation and conservation of affordable housing for lower and moderate-income households through comprehensive planning documents and processes, and the provision of financial assistance and other incentives.
10. (H8) Ensure the availability of housing opportunities to all persons regardless of race, color, ancestry, national origin, religion, sex, disability, marital status, familial status, source of income, or sexual orientation.

### **b. Inclusionary Housing**

Both local City policy and state redevelopment law (Health and Safety Code §§33000 et seq.) set forth inclusionary housing regulations that ensure a balance between affordable and market rate housing opportunities in Chula Vista. New housing developments in accordance with those regulations will provide a net gain of new affordable units to the housing stock in the UCSP area.

- The City’s Affordable Housing Policy requires the provision of 10 percent affordable units for new residential developments of 50 units or more.
- Within designated redevelopment project areas, redevelopment law requires at least 15 percent of all new and substantially rehabilitated dwelling units to be available at affordable housing costs to, and occupied by, persons and families of low to moderate income. In addition, whenever low and moderate-income peoples’ housing units are destroyed within designated redevelopment project areas, replacement units must be made available. These replacement units

must be made available at an affordable cost for the same income level as that household that was displaced.

## 5.6.2 Criteria for the Determination of Significance

Appendix G of the State CEQA Guidelines outlines the following criteria for determining the significance of impacts to housing and population.

- Criterion 1: Induces substantial population growth in an area, either directly or indirectly;
- Criterion 2: Displaces substantial numbers of existing housing, necessitating the construction or replacement of housing elsewhere;
- Criterion 3: Displaces substantial numbers of people, necessitating the construction or replacement of housing elsewhere.

## 5.6.3 Impacts

### 5.6.3.1 Population Growth Inducement

- **Criterion 1: Induces substantial population growth in an area, either directly or indirectly.**

Chula Vista has experienced and is projected to continue to experience significant rates of growth and development over the next 25 years. Between 2004 and 2030, the City's population is expected to increase by over 30 percent, a net gain of approximately 90,564 persons by 2030. Build-out of the UCSP subdistricts over the next 25 years is anticipated to result in a total Urban Core population of 27,864 by 2030, an estimated increase of 18,318 or nearly triple the existing population. This estimate is based on a population generation factor of 2.58 persons per multi-family dwelling unit.

Area	2000	2004	2030	Numeric Change
City	173,556	209,436	300,000	90,564
UCSP		9,546	27,864	18,318

As an implementing document of the General Plan Update, the UCSP is intended to accommodate a portion of the City's projected growth in a logical and deliberate manner that enhances Chula Vista's urban core and augments the City's supply and variety of housing, while addressing and reducing other environmental impacts associated with expanded transportation systems, infrastructure and natural resources. The UCSP would have a beneficial impact on planned population and housing through the implementation of "smart growth" principles, consistent with the GPU, by allowing higher density and intensity development in areas in and around transit and commercial

corridors, and on vacant and underutilized land. The majority of these areas are currently developed with singular commercial, office and residential uses. The UCSP would instead create a mixed used urban environment that is oriented to transit and pedestrian activity while minimizing impacts on stable residential neighborhoods.

The UCSP would induce substantial population growth in the Subdistricts Area, as planned for under the GPU. The UCSP incorporates zoning provisions, development regulations and design guidelines which are intended to accommodate the anticipated population growth. All new development in the Subdistricts Area will be subject to these regulations and guidelines. As a result, the UCSP will not result in a significant adverse impact on population growth. Other potential environmental impacts associated with population growth in the UCSP area (e.g., transportation/traffic, air quality, noise, etc.) are addressed in the relevant sections of this EIR.

### 5.6.3.2 Housing Displacement

- **Criterion 2: Displaces substantial numbers of existing housing, necessitating the construction or replacement of housing elsewhere.**

The 2030 Cities/Counties Forecast developed by SANDAG anticipates that Chula Vista's housing stock will increase by 47 percent to 87,537 units. (Note: These projections do not reflect changes under the General Plan Update). SANDAG also projects that, by 2030, the housing stock will continue to be dominated by single-family homes, but to a lesser degree (58%). Multifamily housing is anticipated to comprise 38 percent of the overall housing stock.

Over the next 25 years, the UCSP is anticipated to increase the housing stock within the urban core subdistricts by up to approximately 7,100 net new dwelling units, for a total of approximately 10,800 units. Using a constant rate of growth, the UCSP could add up to an additional 284 units per year. Depending on the location (i.e. which subdistrict) and size of the subject property, this number of units could reasonably be accommodated within multiple development projects per year.

The additional housing would be created in the form of multi-family dwelling units, and up to 100 percent of the housing units could be multi-family upon complete buildout of the subdistricts, consistent with the UCSP. This would nearly triple the number of existing housing units in the UCSP subdistricts and contribute a significant amount of additional housing to the San Diego and South Bay region that has historically experienced, significant housing deficiencies and escalating housing prices.

The increase in housing is an intended result of the smart growth policies of directing new infill development to areas around transit and commercial corridors, vacant land and underutilized areas. Approximately two-thirds of the existing uses within the Subdistricts Area are low intensity commercial and office uses, particularly along the major corridors



of E Street, Broadway, H Street and Third Avenue. Due to the mixed used nature of planned uses, additional housing would be added to areas that currently may only contain underutilized commercial or office uses as well as areas that are currently developed with lower density housing. This overall increase in the utilization of land resources results in a net increase of housing units.

In addition to adding dwelling units to the City's housing stock, the UCSP's zoning designations and Floor Area Ratios (FARs) will provide for a wide range and variety of housing types throughout the UCSP area. State law and local City policies will also provide for a wide range of affordability in the City and will be considered, as applicable, in conjunction with future development proposals under the UCSP. The UCSP and the City's affordable housing policies and inclusionary requirements will therefore have a beneficial impact on both housing supply and housing affordability within the UCSP area.

While housing may be temporarily displaced during the development of individual project sites, the continuous production of additional housing within the urban core and throughout Chula Vista would ensure the provision of housing within the same area and would not require it elsewhere in San Diego county or neighboring counties. Due to the on-going production of housing in the City, this short-term impact is not considered significant. The UCSP is therefore anticipated to have a beneficial impact on housing supply in a region experiencing significant housing deficiencies and would not necessitate the construction or replacement of housing elsewhere.

### **5.6.3.3 Displacement of People**

- **Criterion 3: Displaces substantial numbers of people, necessitating the construction or replacement of housing elsewhere.**

The UCSP would result in a substantial increase in population over the existing condition. Approximately two-thirds of the existing uses within the Subdistricts Area are low intensity commercial and office uses, particularly along the major corridors of E Street, Broadway, H Street and Third Avenue. As a result, the majority of new development in the UCSP Subdistricts Area is expected to replace these low-intensity non-residential uses with higher intensity, mixed-use development that will provide additional housing units. While people may be temporarily displaced during the development of individual project sites, the continuous production of housing elsewhere within the urban core and throughout Chula Vista would ensure replacement of housing and provide a continuous source of housing options. This additional housing would accommodate the existing and new population and would not require construction of housing elsewhere.

### 5.6.4 Level of Significance Prior to Mitigation

Development under the UCSP would result in a substantial increase in the population of Chula Vista because it would accommodate growth that is planned to occur locally. The UCSP would have a beneficial impact on planned population and housing through the implementation of “smart growth” principles, consistent with the GPU, by directing higher density and intensity development in areas in and around transit and commercial corridors, and on vacant and underutilized land, and would provide housing to help meet the regional housing needs as approved by the State Department of HCD and SANDAG. The development regulations and design guidelines of the UCSP are expected to protect existing, stable residential neighborhoods, reduce urban sprawl, and reduce the direct and indirect impacts of increased population and housing to below a level of significance. The secondary environmental impacts associated with this increased population are discussed in the individual topic sections of this report. Impacts to issues such as traffic, air quality, noise due to population and housing increases consistent with the UCSP are discussed in Sections 5.1 through 5.13 and Chapter 7 of this document.

- **Criterion 1: Induces substantial population growth in an area, either directly or indirectly.**

The UCSP would induce substantial population growth in the Subdistricts Area as planned for in the GPU, by providing development regulations and design guidelines which are intended to direct a portion of the growth which is expected to occur in the City to the Subdistricts Area. The UCSP would have a beneficial impact on planned population and housing through the implementation of “smart growth” principles, consistent with the GPU, by allowing higher density and intensity development in areas in and around transit and commercial corridors, and on vacant and underutilized land. Therefore, the substantial population growth planned for the Subdistricts Area will not result in a significant impact. The secondary environmental impacts associated with this increased population are discussed in the individual topic sections of this report. Impact to issues such as traffic, air quality, noise due to population and housing increases consistent with the UCSP are discussed in Sections 5.1 through 5.13 and Chapter 7 of this document.

- **Criterion 2: Displaces substantial numbers of existing housing necessitating the construction or replacement of housing elsewhere.**

The UCSP will not displace substantial numbers of existing housing necessitating the construction of replacement housing elsewhere. The majority of the existing uses in the Subdistricts Area are low intensity commercial and offices uses, particularly along the major corridors of E Street, Broadway, H Street, and Third Avenue. As a result, the majority of new development in the Subdistricts Area is expected to replace these low-intensity non-residential uses with higher intensity, mixed-use development that will substantially increase the number of housing units. Housing that may be removed by

individual projects completed in compliance with the UCSP does not necessitate the construction of housing elsewhere because the overall number of housing units would be accommodated with the UCSP. Therefore, the UCSP will not have a significant impact on the displacement of housing necessitating the construction or replacement of housing elsewhere.

- **Criterion 3: Displaces substantial numbers of people necessitating the construction or replacement of housing elsewhere.**

The UCSP will not displace substantial numbers of people necessitating the construction of replacement housing elsewhere. The majority of the existing uses in the Subdistricts Area are low intensity commercial and offices uses, particularly along the major corridors of E Street, Broadway, H Street, and Third Avenue. As a result, the majority of new development in the Subdistricts Area is expected to replace these low-intensity non-residential uses with higher intensity, mixed-use development that will substantially increase the number of housing units available to people who wish to reside in the project area. Although the removal of existing housing may result in a temporary displacement of some people, the displacement is not considered a significant impact because the numbers of units planned in the UCSP are sufficient to accommodate the affected population. Therefore, the UCSP will not have a significant impact on the displacement of substantial numbers of people necessitating the construction or replacement of housing elsewhere.

## **5.6.5 Mitigation Measures**

No mitigation measures are required.

## **5.6.6 Level of Significance After Mitigation**

Although the UCSP may result in a substantial increase to population and housing in the Subdistricts Area, the increase will not result in significant impacts to population and housing because the UCSP amends existing zoning and provides development regulations and design guidelines which are intended to accommodate the anticipated growth. By directing anticipated growth in the City to the Subdistricts Area, the UCSP may also prevent adverse impacts to population and housing from occurring in other areas of the City which are not designed to accommodate increased growth. See Sections 5.1-5.13 of this EIR for levels of significance after mitigation associated with secondary impacts.

## 5.7 Hydrology and Water Quality

The following analysis of the potential impacts to runoff, flooding, and water quality which may result from the proposed UCSP is summarized from the hydrology study prepared by PBS&J for the GPU EIR. This report is incorporated by reference pursuant to CEQA Guidelines Section 15150 and is available for review in its entirety at the City of Chula Vista Planning Department and Community Development Department at 276 Fourth Avenue, the Chula Vista Public Library Civic Center Branch at 365 F Street, and on the City of Chula Vista website documents page at [www.ci.chula-vista.ca.us](http://www.ci.chula-vista.ca.us), as Appendix D of the GPU EIR.

Additional information was obtained from the San Diego Bay Watershed Urban Runoff Management Program Document prepared by the City of Chula Vista, City of Coronado, City of Imperial Beach, City of La Mesa, City of Lemon Grove, City of National City, City of San Diego, County of San Diego, and the Port of San Diego in January 2003. Further information regarding existing groundwater resources was obtained from the geologic survey conducted for the GPU EIR and summarized in this EIR as Section 5.4, Geology and Soils.

### 5.7.1 Existing Conditions

#### 5.7.1.1 Area Hydrology

The UCSP area is located within the San Diego Bay watershed. The San Diego Bay watershed encompasses a 415-square-mile area that extends north of the border with Mexico, south of Interstate 8, and east from San Diego Bay to the Laguna Mountains. The headwaters of the watershed begin in the unincorporated area of the county and then transect all or portions of seven cities, including Chula Vista.

The San Diego Bay watershed is comprised of three sub-watersheds (or hydrologic units), including the Sweetwater hydrologic unit within which the proposed UCSP area occurs. Covering 230 square miles, the Sweetwater hydrologic unit is the largest of the three hydrologic units encompassing the San Diego Bay watershed. The Sweetwater hydrologic unit is itself divided into three hydrologic areas. The UCSP area occurs within the Lower Sweetwater hydrologic area.

##### a. Surface Water

There are no major surface water bodies within the UCSP area. However, the Sweetwater River and San Diego Bay are two major surface water bodies which occur near the UCSP area. The Sweetwater River occurs approximately a quarter-mile north of and outside the north UCSP boundary. It flows west to the Bay from the Sweetwater Reservoir in the upper reaches of the Sweetwater hydrologic unit roughly 40 miles northeast of the UCSP area.

The San Diego Bay lies approximately one and one-half miles west of the west boundary of the UCSP.

San Diego Bay has been extensively developed as a port. Ninety percent of the original mudflats have been filled or dredged for development. Watercourses feeding the Bay have historically included the Sweetwater River, the Otay River, Chollas Creek, Paleta Creek, Paradise Creek, and Switzer Creek. However, construction of dams and extensive use of groundwater has reduced input to the Bay from these watercourses by 76 percent. The majority of freshwater input to the Bay comes instead from surface runoff from developed areas and intermittent flow from rivers and creeks during rain events.

The existing quality of runoff in the UCSP area and Sweetwater subwatershed is typical of urban areas. Typical pollutants found in urban runoff include metals, sediments, pesticides, hydrocarbons, nutrients (phosphates and nitrates), surfactants, bacteria and pathogens. Urban runoff comprises the predominant source of water quality degradation in the watershed.

## **b. Groundwater**

Nearly all of the local groundwater basins of the San Diego region have been intensively developed for municipal and agricultural supply purposes. This holds true for the groundwater resources underlying the UCSP area. Historically, groundwater has been used in the City of Chula Vista for drinking water and agriculture; however, due to depletion and degraded water quality it is currently used in limited cases.

Groundwater depths vary throughout the local groundwater basin and UCSP area, depending on topography and underlying geologic formation. Groundwater within the UCSP area is expected to be shallow in the limited, lower elevation areas underlain by fill and unconsolidated alluvial sediments. These areas occur in the UCSP Subdistricts Area, west of Broadway, south of F Street; and at the south end of Third Avenue (refer to Qal in Figure 5.4-1, Geological Formations). Perched water conditions due to irrigation and runoff may also be present. The majority of the UCSP area, however, is expected to have moderately deep groundwater tables.

Recharge to the alluvium is through infiltration of surface flows from streams, rivers, irrigation, precipitation, and groundwater flow from adjacent formations. The UCSP Area overlies the San Diego Formation Aquifer. The San Diego Formation Aquifer is considered to have limited ground water development potential because of poor water quality due to saltwater intrusion from San Diego Bay and low permeability. Most of the groundwater production and recharge occurs within the Sweetwater River Ground Water Basin which lies just outside of the UCSP Area to the north.

### **c. Drainage/Flooding**

Surface watercourses and surface runoff generally flow west, and discharge into the San Diego Bay. The direction of groundwater flow is also generally toward the west, with significant local variations. Urban runoff and stormwater within the San Diego Bay watershed is conveyed to the Bay via a network of over 200 storm drains. The City of Chula Vista operates and maintains its own drainage and flood control facilities. This system is made up of, among other facilities, improved and unimproved flood control channels, bridge crossings, detention basins, and approximately 312 miles of storm drain pipelines of various sizes. The condition of the overall drainage system is continually monitored for any major deficiencies or problems.

The Federal Emergency Management Agency (FEMA) has mapped zones of anticipated flooding based on base flood elevations for 100- and 500-year flood events, as presented on the Flood Insurance Rate Maps. No areas within the 100-year flood zone are mapped within the UCSP area. The nearest flood hazard areas include potential flooding of the Sweetwater River a half-mile north of the UCSP boundary and potential flooding of the river's mouth at San Diego Bay west of the UCSP boundary approximately one-half mile.

#### **5.7.1.2 Regulatory Plans and Policies**

A number of laws, general policies, and regulations govern hydrology and water quality pertinent to the proposed UCSP. This regulatory framework also provides the guidelines and management practices to avoid, minimize, or mitigate adverse impacts to these resources. A description of these regulations is provided below.

##### **a. Clean Water Act**

The Clean Water Act (CWA) is the primary federal law that protects our nation's waters, including lakes, rivers, aquifers, and coastal areas. Section 401 of the CWA requires that any applicant for a federal permit to conduct any activity, including the construction or operation of a facility, which may result in the discharge of any pollutant, must obtain certification from the state. Section 402 of the Clean Water Act established the National Pollutant Discharge Elimination System (NPDES) to regulate the discharge of pollutants from point sources. Section 404 of the Clean Water Act established a permit program to regulate the discharge of dredged material into waters of the U.S. Section 303 of the CWA requires states to identify surface waters that have been impaired. Under Section 303(d), states, territories, and authorized tribes are required to develop a list of water quality segments that do not meet water quality standards, even after point sources of pollution have installed the minimum required levels of pollution control technology.

California's Porter-Cologne Water Quality Control Act of 1969 (California Water Code §13000 et seq.), provides for aesthetic values, fish and wildlife preservation, water reclamation, and comprehensive planning and regulation to attain the highest "reasonable"

water quality in consideration of conflicting demands. The act, which became Division 7 (Water Quality) of the State Water Code, established the responsibilities and authorities of the State Water Resources Control Board (SWRCB) and nine Regional Water Quality Control Boards (RWQCBs). Each regional board is directed to formulate and adopt a water quality control plan for all areas within its region. The San Diego RWQCB governs regional water quality issues for the San Diego region, including the City of Chula Vista.

### **b. Point Source Permits (Water Discharge Requirements & NPDES)**

The San Diego RWQCB regulates most point source discharges of waste through the issuance of Waste Discharge Requirements and NPDES permits. As stated above, the CWA Section 402 establishes the framework for regulating storm water discharges from construction, industrial, and municipal point sources under the NPDES. In California, the SWRCB administers the NPDES program through its regional boards. Compliance with these permits requires self-monitoring and reporting to the RWQCB by each individual discharger. All applicable dischargers are required to comply with the conditions of these permits.

### **c. Construction Permit**

All construction activities must comply with all applicable regulations established by the federal EPA NPDES permit requirements for urban runoff and stormwater discharge. Compliance with NPDES includes meeting the requirements of the General Permit for Stormwater Discharges Associated with Construction Activity (General Construction Permit) and filing of a Notice of Intent with the San Diego RWQCB. Compliance with the permit requires that a stormwater pollution prevention plan (SWPPP) be prepared and implemented for any project within the study area. In addition, construction activities must comply with the requirements of the City of Chula Vista's Storm Water Manual, Form 5500.

The Post-Construction Stormwater Management Plan requires that Permanent Best Management Practices (BMPs) be established to prevent the discharge of sediment and other pollutants in stormwater runoff from a completed project. Typical post-development BMPs to treat water quality are concerned with nuisance water and first flush events. This includes the volume of runoff produced from an 85<sup>th</sup> percentile, 24-hour rainfall event.

### **d. The San Diego Municipal Permit**

Under the CWA, municipalities across the nation are issued Municipal NPDES permits (Municipal Permit), which are administered by the SWRCB and RWQCBs. In 1990, under authority of the CWA, but prior to finalization of the NPDES Phase I regulations, the San Diego RWQCB issued its first municipal permit for the San Diego Region (Order 90-42). The Municipal Permit named the 18 municipalities within the county, including the City of Chula Vista, the County of San Diego, and the San Diego Unified Port District as co-permittees. More recently, on February 21, 2001, the San Diego RWQCB adopted Order No. 2001-01,

for a new Municipal Permit, which represents the second municipal permit issued to the San Diego County co-permittees.

The minimum requirement of the Municipal Permit is to ensure that pollutants in discharges from storm drain systems owned by the co-permittees are reduced to the maximum extent practicable, and that pollutants in discharges from construction are reduced by employing best available technology. The Municipal Permit outlines the individual responsibilities of the co-permittees including, but not limited to, the implementation of: (1) management programs; (2) BMPs; and (3) monitoring programs.

Each co-permittee is required to implement the requirements of the Municipal Permit across two broad levels of responsibility. Co-permittees have responsibility for the water quality impacts of urbanization within: (1) their jurisdiction, and (2) their watershed(s). The Municipal Permit reflects these two broad levels of responsibility, in that it requires implementation of comprehensive Urban Runoff Management Plans (URMPs) at both jurisdictional and watershed levels.

#### **e. Chula Vista Jurisdictional Urban Runoff Management Program**

At the jurisdictional level, the City of Chula Vista has complied with the condition of the Municipal Permit by producing a Jurisdictional Urban Runoff Management Program (JURMP). The Chula Vista JURMP was submitted to the San Diego RWQCB February, 2002. The JURMP outlines the specific measures the City would take to meet permit requirements including construction, commercial, and industrial site inspections, public education and outreach efforts, dry weather field screening, and enforcement of local stormwater ordinances.

#### **f. San Diego Bay Watershed Urban Runoff Management Program**

The City of Chula Vista, along with seven other municipalities, the County of San Diego, and the San Diego Unified Port District, developed the San Diego Bay Watershed Urban Runoff Management Program (WURMP) to comply with the Municipal Permit's watershed responsibility requirement. The San Diego Bay WURMP identifies and prioritizes watershed water quality problems that can be attributed to urban runoff and provides solutions to mitigate these problems. The San Diego Bay WURMP looks at land use as one component of watershed management and impervious surfaces as a major contributor to water quality degradation.

The San Diego Bay WURMP provides an assessment of the quality of the water of receiving bodies within the watershed and identifies and prioritizes related challenges as well as outlines activities the local jurisdictions will undertake in cooperation with others in order to address the water quality problems that have been identified.



The San Diego Bay WURMP outlines several activities the City of Chula Vista and the other co-permittees have been implementing and will continue to implement over the remaining life of the Municipal Permit. Included in this are four primary objectives which guide watershed management decisions: (1) develop and expand methods to assess and improve water quality within the watershed; (2) integrate watershed principles into land use planning; (3) enhance public understanding of sources of water pollution within the watershed; and (4) encourage and enhance stakeholder involvement within the watershed. Activities and/or programs developed to achieve these objectives include conducting monitoring programs, enhancing data management, developing education programs aimed at targeting priority pollutants and emphasizing the overall watershed concept, and developing strategies for enhancing inter-jurisdictional planning.

The San Diego Bay WURMP was developed with the input from a diverse set of stakeholders, who will also be an integral part of program implementation. It is the goal of all participating jurisdictions to work cooperatively with other agencies, non-governmental organizations, and private citizens at the watershed level in order to positively affect the water resources of the region and achieve compliance with the Municipal Permit.

#### **g. Chula Vista Development and Redevelopment Projects Storm Water Management Standards and Requirements Manual**

The San Diego Municipal Permit requires co-permittees to develop and implement a program addressing urban runoff pollution issues in development planning for public and private projects. The City of Chula Vista developed the Development and Redevelopment Projects Storm Water Management Standards Requirements Manual (Manual) in November 26, 2002 to address these urban runoff pollution issues. The Manual provides information to applicants for development, redevelopment, and public projects processed through the City on how to comply with permanent and construction storm water requirements. The Manual guides project applicants through the selection, design, and incorporation of storm water BMPs into their projects.

The Manual includes the Standard Urban Stormwater Mitigation Plan (SUSMP), which was developed by the City of Chula Vista to address post-construction urban runoff pollution from new development and redevelopment projects meeting the “priority project” classifications. The primary goal of the SUSMP is to reduce pollutants and runoff flows from all new development and significant redevelopment projects. Additional goals are to develop and implement policies to ensure to the maximum extent practicable that development does not increase pollutant loads from a project site and considers urban runoff flow rates and velocities. This goal may be achieved through site-specific controls and/or drainage area-based or shared structural treatment controls. The City of Chula Vista developed the SUSMP to identify appropriate BMPs for certain designated project types to achieve this goal. Under the SUSMP, the City of Chula Vista will approve the SUSMP project plan(s) as part of the development plan approval process for discretionary projects, and prior to issuing permits for ministerial projects.

## **h. Chula Vista Growth Management Ordinance Threshold Standard**

The Growth Management Ordinance Threshold Standard for drainage states that storm water flows and volumes shall not exceed City Engineering Standards and that the GMOC shall annually review the performance of the City's storm drain system to determine its ability to meet the goals and objectives above.

## **i. Chula Vista Subdivision Manual**

All development projects are required to adhere to the City of Chula Vista Subdivision Manual. With respect to drainage, the developer of a proposed subdivision is required by this manual to:

1. Accept any drainage entering a proposed subdivision and to provide adequate drainage facilities to convey all drainage on the property to discharge into, or connect to, the drainage facility into which the drainage would naturally flow;
2. Provide on-site storm detention facilities such that post-development flow rate for a given design storm does not exceed the pre-development flow rate at the outlet of the subdivision;
3. Provide on-site erosion protection and de-silting facilities;
4. Provide bonds for the cost of design and construction of any drainage facilities, including but not limited to off-site easements or facilities, necessary to accomplish these responsibilities;
5. Provide all graded pads with adequate drainage facilities as approved by the City Engineer; and
6. Submit plans for all private storm drain systems for review and approval by the City Engineer.

## **5.7.2 Criteria for the Determination of Significance**

Implementation of the proposed UCSP would result in a significant adverse impact to hydrology or water quality if the goals, policies, land use development regulations, or design guidelines of the UCSP would:

- Criterion 1: Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.
- Criterion 2: Substantially deplete groundwater resources or aquifer recharge areas.

- **Criterion 3:** Substantially alter the existing drainage pattern of the site or area or substantially increase surface runoff in a manner which would result in on- or off-site flooding or exceed capacity of existing drainage systems.

## 5.7.3 Impacts

### 5.7.3.1 Water Quality Degradation

- **Criterion 1:** Violate any water quality standards or waste discharge requirements, or otherwise substantially degrade water quality.

The WURMP for the San Diego Bay Watershed views land use as a significant component of watershed management and identifies impervious surfaces as being a major contributor to water quality degradation of both surface water and groundwater. The replacement of absorptive land surfaces (such as parks, agriculture, vacant lots, and native habitat) with impervious surfaces typically results in reduced ground absorption and increased surface runoff rates and/or volumes. This may lead to increased soil erosion and sedimentation of receiving waters. Pollutant concentrations of surface runoff also typically increase, as land use is intensified and urbanized.

The UCSP proposes redevelopment of an already highly urbanized built environment. Few vacant lots, parks or other undeveloped surfaces currently exist within the UCSP area. However, the proposed UCSP comprises a three-fold increase in population and associated intensification of existing urban land uses which would likely result in a substantial increase in direct runoff to drainage basins, municipal storm sewer systems, and eventual drainage to surface water and/or the ocean. This runoff will likely contain typical urban runoff pollutants such as sediment, pathogens, heavy metals, petroleum products, nutrients (phosphates and nitrates) and trash. The long-term operational impacts to water quality which may result from buildout of the UCSP could incrementally decrease water quality and impair the beneficial uses of receiving water bodies, thus resulting in a significant impact.

The potential long-term impacts to water quality which may result from implementation of the proposed UCSP would be required to be reduced to acceptable levels through the mandatory controls imposed by local, state and federal regulations described in Section 5.7.1.2. The increase in urban runoff attributed to long-term implementation of the UCSP would be ensured to remain below a level of significance through mandatory adherence of future development to federal, state and local water quality controls (e.g. JURMP, SUSMP, NPDES, SWPP, and City Development and Redevelopment Projects Storm Water Manual). The long-term BMPs required by the SUSMP and Storm Water Manual would protect against long-term significant water quality impacts from future development of the UCSP.

Both the future land development construction drawings and associated reports will be required to include details, notes, and discussions relative to the required or recommended

BMPs. Some site design features that can be incorporated in the planning and design of development projects to mitigate their negative impacts include, but are not limited to the following:

- Minimize impervious footprints
  - Minimize widths of streets and sidewalks without compromising safety and regulatory requirements.
  - Use permeable surfaces for low traffic and pedestrian areas where feasible.
  - Avoid decorative hardscape areas and consider landscaping where feasible.
  - Design driveways with unit pavers or crushed aggregate surfaces or, pave under wheels only
- Conserve natural resources and areas
- Use drought tolerant native plants in landscaping
- Use vegetated swales instead of gutters where feasible
- Minimize directly connected impervious areas
  - Direct runoff from roofs and parking areas to landscaped areas before discharge to underground drainage systems
  - Incorporate vegetated filter strips between impervious areas and drainage systems
- Protect slopes and channels
- Use landscaped areas to act as water quality features by grading to have a slightly concave slope, thereby acting as retention/detention basins.

The type and extent of future projects' design features and incorporated BMPs would be tailored to the individual projects based on site-specific conditions and the planned land uses to be constructed on the site.

Certain elements of the proposed UCSP land use development regulations and design guidelines potentially allow for a more ecologically sophisticated built environment in the urban core: one that prioritizes pedestrian, cycling and public transit over the automobile, creates a mix of uses to meet area needs, and encourages sustainable building practices. A couple of key tenants of sustainable building practices could contribute to a better local hydrology. First, sustainable building design and materials include proven technologies to reduce energy, water, and toxic materials inputs and subsequent waste outputs ([www.usgbc.org](http://www.usgbc.org)). A second hydrologic advantage of sustainable building practices are the application of "green" or "living" roofs which are essentially vegetated sod roofs that have been proven to absorb and filter urban runoff ([www.greenroofs.org](http://www.greenroofs.org)).

These and other "green building" practices are encouraged in the UCSP through its Environmental Sustainability Goals contained in Chapter VII and through provision of incentives to green builders contained in Chapter VI. Chapter VII, Section 5, of the UCSP contains an overview of the techniques and advantages of green building practices, and an outline of the established green building rating systems and guidelines, including at the national level, the US Green Building Council's (GBC) Leadership in Energy and Environmental Design (LEED) green building rating system. The LEED is a voluntary, national standard for developing high-performance, sustainable buildings. The GBC has

four LEED levels, in descending levels of performance: platinum, gold, silver, and certified, which were developed by GBC membership representing every sector of the building industry.

The purpose of UCSP Chapter VII, Section 5, Environmental Sustainability Goals, is to “assure that further commercial and civic development meets the City’s sustainability goals by incorporating green building measures into the design, construction, and maintenance of buildings” (p. VI-123). The City of Chula Vista has embraced the goals of LEED by stating that “all newly constructed City sponsored building in the urban core should incorporate sufficient green building methods and techniques to qualify for the equivalent of LEED Silver” (p. VI-129).

Green building practices are not required for private development within the UCSP area. However, the environmental sustainability goals expressed in the UCSP include the statement that “City and staff should work with residents businesses, and other members of the community, including architects, builders, and contractors to encourage private development within the City that uses green building methods and practices” (p. VII-129). In addition, the Urban Amenities Table of the UCSP Chapter VI, Land Use and Development Guidelines, includes the incentives of FAR increases and priority permit review for projects that qualify for LEED certification (p. VI-51). To earn LEED certification, the applicant’s project must satisfy all of the prerequisites and a minimum number of points to attain a LEED certified rating level. This certification process includes a LEED Scorecard, which future project applicants will submit to the Community Development Director with their UCDP application. Incorporation of green building design into subsequent individual development projects may additionally serve to reduce potential water quality impacts.

In addition to the potential long-term, buildout effects of the proposed UCSP to water quality described above, short-term construction activities can also potentially contribute to the degradation of a local surface or groundwater regime. Through direct discharge of pollutants (fuels, solvents, surfactants), soil excavation, and through the encountering of shallow groundwater during subfloor grading, construction practices pose potentially significant short-term water quality impacts.

However, construction activities would be subject to specific conformance requirements of the State Water Resources Control Board’s General Construction NPDES Permits, including the implementation of an approved SWPPP and monitoring/testing program, with pollution control measures involving the use of best available technology, best conventional pollutant control technology, and/or best management practices pursuant to direction by the SWRCB and the applicable RWQCB office. BMPs required as part of the SWPP would prevent significant water quality impacts during construction. In addition, Waste Discharge Permits required for groundwater discharge and dewatering during construction would avoid significant water quality impacts from this practice.

### 5.7.3.2 Groundwater Depletion

- **Criterion 2: Substantially deplete groundwater resources or aquifer recharge areas.**

Depletion of groundwater resources or aquifer recharge can potentially result from direct withdrawals of groundwater from a productive groundwater basin and/or indirect reduction of groundwater recharge through a decrease in the absorptive ground surface of productive groundwater recharge basins or aquifer recharge areas. As described in Existing Conditions, the UCSP area is underlain by the San Diego Formation Aquifer which is considered to have limited groundwater potential along the coast because of poor quality due to saltwater intrusion from San Diego Bay. The productive portions of this aquifer occur east of the UCSP area, well beyond the Subdistricts Area, in the undeveloped eastern portions of the City. Similarly, the productive Sweetwater River Ground Water Basin lies outside of the Subdistricts Area to the north, along the Sweetwater River.

Potable water supply to the UCSP area is, and will continue to be, provided by the Sweetwater Authority from a combination of a small local supply (obtained from eastern groundwater wells and a desalination facility) augmented by imported water purchased from the Metropolitan Water District, which in turn purchases water rights from the Colorado River. Section 5.12.1 of this EIR contains further discussion of water supply issues including groundwater resources. The Sweetwater Authority has verified availability of future water supplies to serve the proposed UCSP without depletion of groundwater resources (refer to Section 5.12.1). Therefore, impacts to groundwater resources availability resulting from implementation of the proposed UCSP would not be significant.

### 5.7.3.3 Drainage/Flooding

- **Criterion 3: Substantially alter the existing drainage pattern of the site or area or substantially increase surface runoff in a manner which would result in on- or off-site flooding or exceed capacity of existing drainage systems.**

The UCSP area is highly urbanized, largely flat and paved with impervious surfaces, and contains very little vacant land. The physical drainage pattern of the urban core will not be substantially altered through implementation of the UCSP, as the UCSP does not propose changes to the topography of the area. The UCSP does, however, allow for a three-fold increase in population at buildout, and associated intensification of urban land uses, which may substantially increase surface runoff. However, drainage basins serving the UCSP area, the Sweetwater Basins 3 and Central Basin 1/3/4/5 and 2 would be negligibly impacted by implementation of the proposed UCSP. When compared to existing conditions, land use associated with redevelopment and implementation of the UCSP is generally similar in nature from a perspective of hydrologic response. That is, the typical percentage of imperviousness for a given parcel of land is similar between the existing and redeveloped condition. Therefore, within these developed watersheds, implementation of the UCSP will

result in minimal impacts to the existing drainage infrastructure. . In addition, proposed improvements to existing curbs, gutters and sidewalks through the streetscape enhancements to E Street, F Street, H Street, Broadway and Third Avenue, as described in Chapter 5 and 8 of the UCSP, will reduce drainage impacts. Thus, the existing drainage capacity would not be exceeded in a manner which would result in on- or off-site flooding, thus impacts to Criterion 3 are not considered significant.

Provisions of the UCSP which will improve the drainage pattern of the area and reduce runoff rates include an increase in park and open space areas and incentives for sustainable building practices which will result in the increase of permeable areas and the reduction of runoff rates. The UCSP's provisions for sustainable building practices are described above in Section 5.7.3.1. In addition to architectural green building and green roofs described above, sustainable building practices also include "bioswales" (vegetated swales) and other stormwater best managements practices that go beyond local code and seek to detain and treat stormwater prior to entering storm drains and/or water bodies (UCSP, Chapter VII, p. VII-132). As described above in Section 5.7.3.1, Green Building practices are not required of subsequent development, but are offered incentives in the form of FAR increases and priority permit review for qualifying projects.

#### **5.7.4 Summary of Significance Prior to Mitigation**

Implementation of the proposed UCSP would allow for a three-fold increase in population and associated intensification of existing urban land uses which will result in an increase in direct runoff to drainage basins, municipal storm sewer systems, and eventual drainage to surface water and/or the ocean. This runoff will contain typical urban runoff pollutants such as sediment, pathogens, heavy metals, petroleum products, nutrients (phosphates and nitrates) and trash. Therefore, this comprises a potentially significant long-term water quality impact.

The construction activities of subsequent individual projects would also potentially cause short-term water quality impacts through direct discharge of pollutants, soil excavation/sedimentation, and through encountering of shallow groundwater during subfloor grading. This comprises a potentially significant short-term water quality impact.

The UCSP area does not overlie a productive groundwater recharge basin or aquifer recharge area. The San Diego Formation Aquifer, which underlies the UCSP area, is of marginal groundwater use because of poor quality due to saltwater intrusion from nearby San Diego Bay. Potable water supply to the UCSP area is, and will continue to be, provided by the Sweetwater Authority from a combination of local supply (obtained from eastern groundwater wells and a desalination facility) augmented by imported water purchased from the Metropolitan Water District. The Sweetwater Authority has verified availability of future water supplies to serve the proposed UCSP without depletion of groundwater resources

(refer to Section 5.12.1). Therefore, impacts to groundwater resources availability resulting from implementation of the proposed UCSP would not be significant.

The physical drainage pattern of the urban core will not be substantially altered by implementation of the UCSP. The UCSP area is highly urbanized, flat, paved with impervious surfaces, and contains very little vacant land. Development in accordance with the UCSP will not substantially alter this existing topography and associated drainage patterns. The three-fold increase in population and associated intensification of urban land uses allowed in the UCSP, will, however, increase surface runoff. Even assuming this increase, when compared to existing conditions, land use associated with redevelopment and implementation of the UCSP is generally similar in nature from a perspective of hydrologic response. Because the typical percentage of imperviousness for a given parcel of land is similar between the existing and redeveloped condition implementation of the UCSP will result in minimal impacts to the existing drainage infrastructure. In addition, proposed pavement improvements combined with sustainable building incentives will reduce drainage impacts. Thus, the existing drainage capacity would not be exceeded in a manner which would result in on- or off-site flooding, and drainage and flooding impacts are thus not considered significant.

## **5.7.5 Mitigation Measures**

Adherence to mandatory existing federal, state, and local regulations governing runoff, drainage and the release of pollutants into surface and ground waters will provide sufficient protection against potential significant hydrology and water quality impacts. As a condition of approval, all subsequent development projects shall comply with these applicable federal, state and local laws, as outlined in the following mitigation measures to ensure that hydrology and water quality impacts are reduced to below a level of significance.

### **Mitigation Measure**

- 5.7-1 Prior to approval of subsequent individual development projects, compliance with all applicable federal, state and local laws and regulations regarding water quality (e.g. JURMP, SUSMP, NPDES, SWPP, and City Development and Redevelopment Projects Storm Water Manual) shall be demonstrated to the satisfaction of the City Engineer.
- 5.7-2 Prior to approval of subsequent individual development projects, project applicants are required to identify storm water pollutants that are potentially generated and shall demonstrate to the satisfaction of the City Engineer that the proposed on-site storm drain systems fully mitigate drainage impacts and meet all federal, state, and regional water quality objectives and all City standards and requirements. Land development construction drawings and associated required reports, i.e., a hydrology and water quality study, shall include details, notes, and discussions



relative to the required or recommended retention measures and Best Management Practices (BMPs). Permanent storm water BMP requirements shall be incorporated into the project design and all subsequent individual development projects are required to complete the applicable Storm Water Compliance Forms and comply with the City of Chula Vista's Storm Water Management Standards Requirements Manual.

- 5.7-3 The City of Chula Vista requires that all new development and significant redevelopment projects comply with the requirements of the NPDES Municipal Permit, Order No. 2001-01. According to said permit, all projects falling under the Priority Development Project Categories are required to comply with the Standard Urban Storm Water Mitigation Plans (SUSMP) and Numeric Sizing Criteria. Future projects shall comply with all applicable regulations, established by the United States Environmental Protection Agency (USEPA), as set forth in the National Pollutant Discharge Elimination System (NPDES) permit requirements for urban runoff and storm water discharge, and any regulations adopted by the City of Chula Vista pursuant to the NPDES regulations and requirements. Further, the applicant shall file a Notice of Intent (NOI) with the State Water Resource Control Board to obtain coverage under the NPDES General Permit for Storm Water Discharges Associated with Construction Activity and shall implement a Storm Water Pollution Prevention Plan (SWPPP) concurrent with the commencement of grading activities. The SWPPP shall include both construction and post-construction pollution prevention and pollution control measures, and shall identify funding mechanisms for the maintenance of post-construction control measures.
- 5.7-4 Prior to issuance of an Urban Core Development Permit or other discretionary permit, all subsequent individual development projects shall demonstrate to the satisfaction of the Community Development Director, conformance with Mediterranean/indigenous landscaping and other relevant design recommendations provided in UCSP Chapter VII Development Design Guidelines.

### **5.7.6 Summary of Significance After Mitigation**

No significant hydrology or water quality impacts would occur with approval or implementation of the proposed UCSP given adherence of subsequent development projects to mandatory federal, state and local regulations governing hydrology and water quality as identified in Mitigation Measures 5.7-1, 5.7-2, 5.7-3, and 5.7-4.